

REMARKS

This is in response to the Office Action that was mailed on June 6, 2002. With reference to the requirement for restriction, Applicants confirm the election of Group I. Non-elected claims 18-25 have been canceled, without prejudice to their reassertion in this or a continuing application. The objection to claim 2 has been obviated by the cancellation of that claim. The claims herein have been amended in accordance with the disclosure and without change of scope in order to more clearly emphasize the dual nature of the present invention. Also, minor formal amendments have been made to the claims. No new matter has been introduced. Claims 1 and 3-17 are in the case.

Claims 1-8 and 10-16 were rejected, under the second paragraph of 35 USC 112, as failing to define the invention properly. Claim 1 as amended makes it clear that the porous layer of the invention can be self-standing or can be supported on a substrate. Claim 5 as amended makes it clear that the porous layer may comprise a hydrophilic polymer in addition to an organic acid. Claim 13 as amended makes it clear that the porous support contains the organic acid. It is respectfully submitted that the claims as amended satisfy the requirements of the statute.

Claim 1-5, 7, 8, 10-13, 15, and 16 were rejected under 35 USC 102(e) as being anticipated by US 6,177,181 (Hamada). Claims 6, 9, 14, and 17 were rejected under 35 USC 103(e) as being unpatentable over Hamada. The rejections are respectfully traversed.

As apparent from the amended claims, a feature of the present invention, in one aspect, resides in containing an organic acid having a solubility of 0.01 to 2 g in 100 g of water at 20°C in a porous layer or a porous support of an image-receiving sheet. Image-receiving sheets for recording of the present invention are excellent in surface gloss, sharpness of recording images, and color reproducibility as well as ink absorption and blocking resistance. Specification, page 35, lines 15-18.

Hamada discloses "A recording sheet which comprises a substrate, an ink-absorbing layer formed on at least one side of said substrate, and a porous polymer layer having a micro phase separation structure formed on said ink-absorbing layer, wherein said porous polymer layer comprises at least one polymer selected from the group consisting of cellulose derivatives, vinyl-series polymers and polysulfone-series polymers". See Hamada claim 18.

Hamada teaches with respect to the porous membrane "The mean pore size is 0.002 to 0.35 μm " (column 7, lines 48-49). Further, Hamada teaches that "After the drying step, the coating is peeled off from the substrate to give a highly transparent porous membrane or film" (column 11, lines 46-48). Still further, Hamada indicates that "As the substrate, there may be mentioned paper, ... nonwoven fabric.... A preferred substrate is a release paper" (column 10, lines 44-46).

However, Hamada fails to teach or suggest an organic acid having a specific solubility as an additive. Although the Examiner argues that the porous membrane of Hamada comprises an organic acid such as phthalic acid (column 5, line 29), that organic acid in Hamada is a monomer unit constituting polyester-series polymers. Since Hamada uses an organic acid as a monomer for forming a polyester-series polymer, the organic acids never present in the free acid form (having a carboxyl group) in the polyester-series polymer. Therefore, the subject matter of claims is novel in the light of Hamada. Furthermore, an organic acid contained in a porous layer or a porous support of an imaging-receiving sheet is not suggested by the reference, since Hamada fails to teach the important role played by the organic acid in the present invention.

According to the present invention, unexpected advantages are obtained. That is, since the sheet of Comparative Example 1 of the present specification comprises polyethylene terephthalate film, the sheet of Hamada corresponds to the sheet of Comparative Example 1. As is apparent from Table 1 of the present specification, Comparative Example 1 is not satisfactory with respect to all of ink absorption, water resistance-1, image definition, and blocking resistance. In contrast, the sheet of Examples 1-3 containing an organic acid as an additive is excellent in all of the features ink absorption, water resistance-1, image definition, and blocking resistance. These advantages of the present invention are neither taught nor suggested by Hamada.

Conclusion

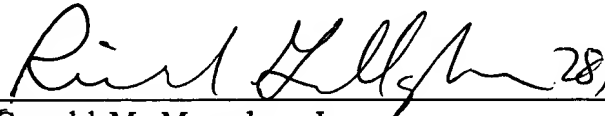
Attached hereto is a marked up version showing the changes made to the application by this Amendment.

If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 2 and 18-25 have been canceled.

The claims have been amended as follows:

1. (amended) An image-receiving sheet comprising (1) a laminate in which a porous layer is formed on at least one side of a substrate, or (2) a porous support [at least a porous layer], wherein the porous layer of the laminate (1) or the porous support (2) contains an organic acid having a solubility of 0.01 to 2 g in 100 g of water at 20°C [of 0.01 to 2 g].

3. (amended) The [An] image-receiving sheet according to claim 1, wherein the organic acid is an aromatic polycarboxylic acid.

4. (amended) The [An] image-receiving sheet according to claim 1, wherein the mean pore size of the porous layer of the laminate (1) or of the porous support (2) is 0.005 to 10 μm .

5. (amended) The [An] image-receiving sheet according to claim 1, wherein the porous layer of the laminate (1) further comprises a hydrophilic polymer [and is provided on at least one side of a substrate].

6. (amended) The [An] image-receiving sheet according to claim 5, which contains 1 to 100 parts by weight of the organic acid relative to 100 parts by weight of the hydrophilic polymer.

7. (amended) The [An] image-receiving sheet according to claim 5, wherein the hydrophilic polymer is at least one member selected from the group consisting of cellulose derivative, a vinyl-series polymer, and a polysulfone-series polymer.

8. (amended) The [An] image-receiving sheet according to claim 1, wherein the porous layer of the laminate (1) has a microphase separation structure resulted from phase conversion.

9. (amended) An image-receiving sheet, which comprises a substrate and a porous layer formed on at least one side of the substrate, wherein [the] said porous layer comprises least one member selected from the group consisting of a cellulose derivative, a vinyl-series polymer, and a polysulfone-series polymer and wherein said porous layer has a microphase separation structure resulted from phase conversion and wherein said porous layer contains 2 to 100 parts by weight of an aromatic dicarboxylic acid relative to 100 parts by weight of the polymer.

10. (amended) The [An] image-receiving sheet according to claim 1 [5], wherein the porous layer of the laminate (1) is separable from the substrate.

11. (amended) The [An] image-receiving sheet according to claim 1 [5], wherein the adhesion strength between the porous layer and the substrate of the laminate (1) is 1 to 500g/15mm.

12. (amended) The [An] image-receiving sheet according to claim 1 [5], which satisfies the following formula (1):

$$|F_p - F_n| < 150\text{g}/15\text{mm} \quad (1)$$

wherein F_n is the adhesion strength between the porous layer and the substrate of the laminate (1) in the non-imaged area, and F_p is the adhesion strength between the porous layer and the substrate of the laminate (1) in the imaged area.

13. (amended) The [An] image-receiving sheet according to claim 1, wherein [the porous layer is constituted of a porous support and] at least one side of the porous support (2) contains the organic acid.

14. (amended) The [An] image-receiving sheet according to claim 13 [1], wherein the amount of the organic acid is not less than 0.05 g/m² on a dried matter basis.

15. (amended) The [An] image-receiving sheet according to claim 13, wherein the porous support (2) is a porous plastic sheet or a fabric.

16. (amended) The [An] image-receiving sheet according to claim 15, wherein the fabric is a woven or non-woven fabric.

17. (amended) An image-receiving sheet comprising a woven or non-woven polyester fabric, wherein at least one side of [a] said woven or non-woven polyester fabric contains an aromatic dicarboxylic acid in an amount of 0.05 to 1 g/m² on a dried matter basis.